

Council on Postsecondary Education
Quality and Accountability Policy Group
May 21, 2007

Statewide Engineering Strategy

ACTION: Based on the *Strategy for Statewide Engineering in Kentucky: A Review 2001–2006*¹ and Council discussion of that report, the Council staff recommends that the Council recommends to the legislature that current institutional allocations of Council funds to support the joint engineering programs be moved to institutional budgets when the following criteria are met. Funding recommendations will follow upon Council agreement that these criteria have been met.

- In already accredited programs, faculty from each of the participating programs must collaboratively redesign distance learning course offerings with the support of the Kentucky Virtual Campus to conform to best practices in distance education and respond to student dissatisfaction with current approaches.
- The joint program in electrical engineering between Murray State University and the University of Louisville must effect the same collaborative redesign of distance courses and achieve accreditation from the Accreditation Board for Engineering and Technology.

The *Statewide Engineering Strategy*, adopted by the Council in July 2000, contained a number of key components to increase geographic access and productivity in engineering education in response to a documented need for such in the industry. A number of strategic components of the statewide plan included integration of secondary, baccalaureate, and post-baccalaureate programs to address the need for a highly skilled workforce tied to the state and nation's economic strength. Initial funding for joint programs with the research institutions and regional universities was made available in fall 2002.

A thorough review of the programs was conducted in 2006. Accomplishments and concerns regarding degrees, enrollment, and funding are addressed in the review, as summarized below.

Accomplishments

- An increase of degrees and formal awards occurred in engineering and engineering technology majors at most levels.
- In the joint programs of civil and mechanical engineering disciplines, baccalaureate degrees increased.
- Western Kentucky University's programs in civil, electrical, and mechanical engineering achieved accreditation from the Accreditation Board for Engineering and Technology.
- Enrollment in all engineering programs increased significantly (13 percent).
- Applicants to the joint baccalaureate programs (MuSU and WKU) have more than tripled since 2002.
- Transfers from the Kentucky Community and Technical College System to the joint programs increased.
- \$5.6 million of state funds have been expended on the joint engineering programs (2002-07).
- The number of active Kentucky resident licensed engineers increased 14.7 percent during this time period.
- A pipeline project to implement and expand K-12 teacher training and curricula in middle and high schools to prepare students for engineering careers has been implemented in 13 school districts across the Commonwealth and an affiliate Kentucky university has been designated to support the programs.

Concerns

- The total number of baccalaureate degrees in engineering and engineering technology decreased.
- The number of baccalaureate degrees in electrical engineering, one of the joint programs, decreased overall.
- The proportion of graduates who were women and minorities remained below national averages.
- Overall, transfers to engineering from KCTCS to the research institutions declined.
- Current distance learning course offerings have not met student expectations and are an unreliable method of curricula delivery.

Additional collaborative work is expected to expand the engineering pipeline, to make program modifications, and to enhance industrial partners as outlined in the 11 recommendations included in the review.

After considerable discussion of the review in January, March, and April 2007, the Council directed the staff to develop a plan for moving the funds supporting the current joint programs into institutional budgets. Though the review contains 11 recommendations, two are recommended here as prerequisites for any Council recommendation to move the funds. Current unexpended funds and continued funding are adequate to accomplish these tasks.

First, for programs which have achieved national accreditation, distance course offerings in the joint programs should be collaboratively redesigned by appropriate faculty at each participating institution to respond to student dissatisfaction and reliability problems identified in the review. The KYVC is currently working across the state to improve the quality of distance learning using *Quality Matters*², a national standard for online instruction involving peer review of the use of technology in teaching. Distance courses in the joint programs should be reviewed and improved through this process with the support of the KYVC. Upon documented completion of a *Quality Matters* review of distance learning course offerings, the Council would recommend to the legislature the transfer of current funding allocations to the respective institutions' budgets. This work could be completed as early as fall 2007, allowing the Council to recommend movement of funds to the 2008 legislature for fiscal 2009 beginning July 1, 2008. This is the earliest funds could be transferred by the legislature under any circumstances.

Second, the one joint program which has not been nationally accredited should participate in the collaborative redesign of distance courses and also achieve accreditation before any recommendation for transfer of funds is made. The redesign could be accomplished as early as fall 2007. However, the earliest possible date for accreditation is 2009. Hence, any recommendation to the legislature for movement of funds to MuSU and the UofL supporting this program would occur at a later date.

The Council's 2008-10 biennial budget proposal will be submitted to the Governor and the General Assembly in November 2007 for consideration during the 2008 legislative session. Since the legislature must approve all changes in appropriations, permanent transfer of any of the joint engineering funds would not be effective until July 1, 2008.

¹*Strategy for Statewide Engineering in Kentucky: A Review 2001-2006* (including the 2000 strategy). <http://cpe.ky.gov/NR/rdonlyres/9046D1D8-F00B-4050-8F46-B6D559DA0C22/0/EngineeringReport.pdf>

²*Quality Matters, Underlying Principles of Quality Matters*, December 2006.
<http://qualitymatters.org/Documents/Characteristics%20of%20a%20QM%20Institution.pdf>

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